



National Transportation Safety Board

Maintenance Issues



Maintenance

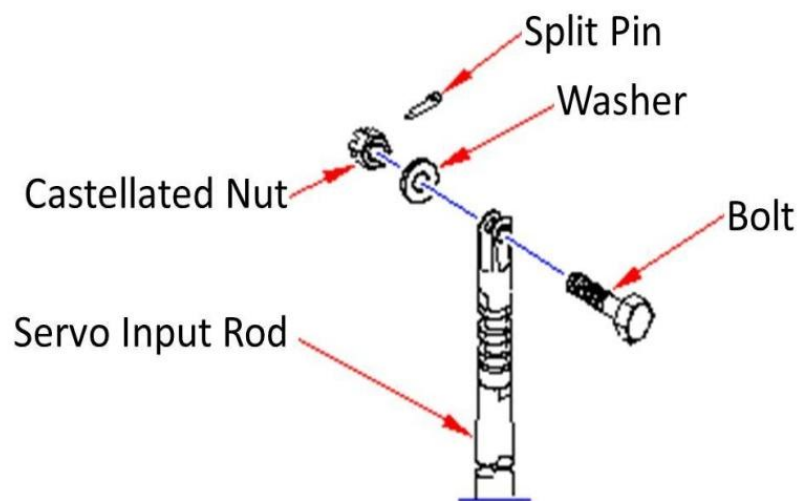
- 100-hour inspection
- Replacement of the following:
 - Engine
 - Fore/aft and tail rotor servos

Fore/Aft Servo Installation

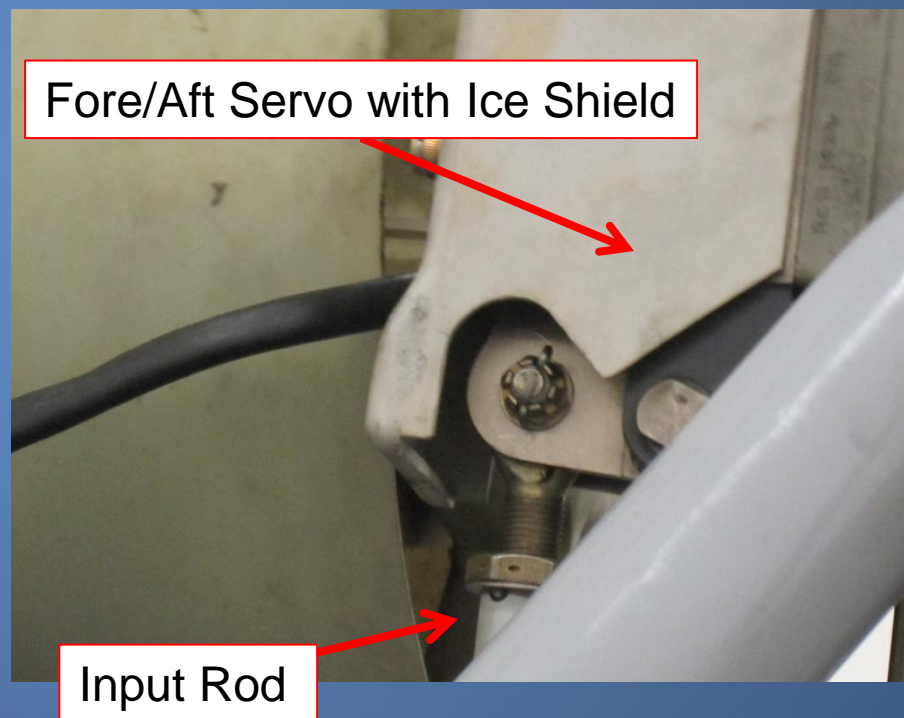
- Fore/aft servo replaced
- Fore/aft servo installation procedures:
 - Assess hardware
 - Connect servo to input rod
 - Torque nut
 - Install split pin
- Inspect installation

Hardware

Input rod hardware



Hardware installed



Self-Locking Nut

Acceptable Nut



Degraded Nut



Hardware Reuse

- Fleet inspection of 13 helicopters, half of nuts did not meet requirements
- Manufacturer's guidance: "If a nut can be easily tightened, it is to be discarded"
- FAA guidance: "DO NOT reuse a fiber or nylon lock nut if the nut cannot meet the minimum prevailing torque values"

Bolt Loss Scenario

- Two locking devices
 - Self-locking nut
 - Split pin
- Self-locking nut most likely became separated from bolt

Postmaintenance Inspection and Check Flight

- Mechanic and inspector completed inspection
- Helicopter check flight conducted
 - Hydraulic belt tension
 - No flight discrepancies

FAA Actions

- GA Maintenance Alert Issued - November 2012
- Aviation Maintenance Alert to be issued - Early 2013
- Updated inspection authorization renewal training begins - Spring 2013



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